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The
# Florida Buggist

Official Organ of the Florida Entomological Society

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## NEW THYSANOPTERA FROM FLORIDA—IV.

J. R. WATSON

53. *Trichothrips brevitubus* n. sp.

*Measurements*: Head, length 0.187 mm., width 0.2 mm.; prothorax, length 0.115 mm., width 0.3 mm.; abdomen, width 0.4 mm.; tube, length 0.1 mm., width at base 0.064 mm., at the apex 0.032 mm.; total body length 1.17 mm. Antennae: segment 1, 24; 2, 52; 3, 64; 4, 63; 5, 52; 6, 48; 7, 46; 8, 26 microns; total length 0. 39 mm.

*Color*, including legs and tube, brown, head and abdomen very dark brown. Antennae entirely bright yellow except segment 8, which is light brown.

*Head* nearly square in general outline, a little wider than long, sides convex, an acute projection between the bases of the antennae. The only prominent spine is the post-ocular which is about 26 microns long. Like all the other spines on the body it is dark brown and ends in a small colorless knob. Eyes rather small, about nine facets showing in lateral profile which occupies about two thirds of the margin of the head, not protruding, black. Ocelli inconspicuous, posterior pair situated far forward opposite the anterior .2 of the eyes whose margins they touch, widely separated. The anterior one points forward, color very dark. Mouth cone long and tapering, reaching a trifle beyond the posterior margin of the prothorax. Antennae twice as long as the head, 8-segmented, spines and sense cones rather short, especially on the basal segments, all colorless and inconspicuous.

*Prothorax* broad and short, approaching a semi-circular outline, sides convex and sharply diverging posteriorly, a long (81 microns) heavy spine near each posterior angle, each angle provided with a single shorter spine.

*Pterthorax* with sides convex and slightly converging posteriorly, without prominent spines. Legs moderately long and slender, without prominent spines. Wings rather short, membrane not reaching the end of the abdomen, fringed with long hairs that reach little beyond the end of the tube.

*Abdomen* wide and short, about a third longer than broad, bearing a few dark spines which become long and heavy posteriorly. Tube but little more than half as long as the head. The longest of the terminal bristles about equal to the length of the tube.

Described from a single female brot to the author by the janitor of the

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experiment station building with the statement that he extracted it from his eye where it was very painful, causing a much more severe smarting than a gnat.

Gainesville, Fla., August, 1918.

Type in the author's collection.

The following key will enable one to separate the North American species (except *T. semicaeus* the description of which, in Uzel, is too brief) which are now (see Hood in Entomologist, Vol. XLVIII, No. 624, May, 1915, p. 106) placed in the genus Trichothrips. Moulton's key (U. S. D. A. Bur. Ent. Tech. Ser. 21) has been followed for the species there given.

## KEY TO THE SPECIES OF TRICHOTHRIPS OF NORTH AMERICA

I. Prominent spines on body with blunt or dilated tips; most forms very dark brown or nearly black (except *T. angusticeps)*, usually with short wings (except *T. longitubus)*.

a. Each fore tarsus armed with a tooth; antennae about 1.7 times as long as head; total body length about 1.5 mm. *T. angusticeps* Hood.

aa. Fore tarsi not armed; antennae about twice as long as head.

b. Wings fully developed; body length about 1.8 mm.; tibiae, tarsi, and intermediate segments of the antennae bright lemon yellow; tube fully as long as the head. *T. longitubus* Hood.

bb. Wings short; body length about 1.2; whole antenna clear yellow; tube about half as long as the head. *T. brevitubus* n. sp.

II. Prominent spines on body acute; antennae about twice as long as head.

a. Individuals small, about 1 mm. in length, without ocelli or wings.

b. Eyes reduced, lateral profile showing but three facets; first segment about half as long as the second....*T. smithii* Hood.

bb. Eyes small but normal; first antennal segment nearly as long as second. .....*T. flavicauda* Morgan.

aa. Individuals rather large, 1.5 mm. or more, wings fully developed or brachypterous.

b. Each fore tarsus armed with a tooth.

c. Antennae 1.75 times as long as head; tube .7 as long as head; total length about 2 mm., fore tarsi with a short, stout tooth. .....*T. ambitus* Hinds.

cc. Antenna slightly more than twice as long as the head; tube slightly shorter than head.

d. Total body length about 1.7 mm.; fore tarsi with a small acute tooth; wings light gray brown, spotted with darker. .....*T. americanus* Hood.

dd. Tarsi with a large tooth.

e. Last two antennal segments completely united; eyes very small; body length about 1.5 mm. .....*T. anomocerus* Hood.

ee. Last two antennal segments not compactly united; eyes normal; body length 1.8 mm. or more.

f. Tarsal tooth straight.
*T. marginalis* Hood & Williams.

ff. Tarsal tooth curved.
*T. terminalis* Hood & Williams.

bb. Tarsi unarmed. ..... *T. zonatus* Hood.

MEGALOMEROTHRIPS, gen. nov.

*Head* considerably longer than wide; cheeks with a few stout bristles but without warts; antennae about twice as long as the head, 8-segmented, intermediate segments elongated. Mouth cone about as long as width at the base which is swollen to a diameter considerably greater than the width of the head; labium rounded but labrum sharp-pointed, reaching nearly to the mesosternum; fore femora enlarged, without teeth; tarsi without teeth. Wings short and weak, not narrowed in the middle. Tube long and slender.

Type *M. eupatorii* n. sp.

54. *Megalomerothrips eupatorii*, n. sp.

*Measurements*: Total length 2.1 mm.; Head, length 0.31 mm.; width 0.23 mm.; Prothorax, length 0.24 mm, width (including coaxe) 0.43 mm.; mesothorax, breadth 0.40 mm.; abdomen, breadth 0.46 mm.; tube, length 0.34 mm., width in the middle 0.08 mm. Antennae: segment 1, 59; 2, 68; 3, 148; 4, 118; 5, 88; 6, 71; 7, 58; 8, 43 microns; total 0.62 mm.

*Color* an almost uniform light brown; posterior segments of abdomen darker and segments 2 and 3 of antennae very light yellow, 3 almost colorless as are the last tarsal joints.

*Head* subquadrangular in outline, about ⅓ longer than wide; frons but slightly convex; cheeks nearly parallel, but slightly convex, provided with a few short thick spines; post-ocular bristles rather long, exceeding the eyes; dorsal surface of head with faint cross-striations. Eyes rather small, not protruding, black. Ocelli prominent, all facing upward; posterior pair opposite the middle of the eyes but not touching their margins. Mouth cone about as wide as the width at the swollen base, labrum tapering to a point, exceeding the labium and nearly reaching the mesosternum. Antennae 8-segmented; segment 3 long and almost colorless; sense cones and bristles colorless and inconspicuous.

*Prothorax* shorter than the head; wide; sides sharply diverging posteriorly and very convex; posterior angles very rounding, provided with moderately long but colorless spines with blunt tips.

*Pterothorax;* sides nearly straight, converging posteriorly; a pair of stout short spines about the middle of the mesothorax. Legs moderately long, concolorous with the body except for the colorless last joints of the tarsi. Fore femora greatly enlarged, ¾ as wide as the head. Wings very short and weak, not nearly reching the base of the tube; fringed with rather short hairs, about 20 interlocated ones.

*Abdomen* elliptical in outline, no bristles on anterior segments but heavy ones on the posterior ones, the longest exceeding the tube. Tube longer than the head, narrow with almost parallel sides, tipped with a few spines which are only slightly more than half the length of the tube.

♂ unknown.

Described from a single female taken by beating *Eupatorium ageratoides* in bloom. Nov. Gainesville, Fla. Type in the author's collection.

The following key will enable one to separate the new genus from the others of section 2 of the Phloethripidae (Moulton Bul. 21 Tech. Sc. Bur. Ent., U. S. D. A.), comprising those genera in which the head is considerable longer than wide and longer than the prothorax. This is not a very good character on which to divide the family, as it divides at least one genus (Haplothrips), but it is a convenient one, and much used.

## KEY TO THE GENERA OF PHLOEOTHRIPIDAE

II. Head considerably longer than wide and longer than the prothorax.

a. Head less than twice as long as wide.

b. Fore femora with a tooth on the inner side near the end. In our species the fore femora are enlarged but the intermediate antennal segments are not elongated. *Acanthothrips*, Uzel. *(Hoplothrips)*.

bb. Fore femora unarmed, in the female, at least.

c. Wings wanting, reduced to pads, or very short and weak.

d. Mouth cone shorter than its width at the base, labrum with a blunt tip. ....*Cephalothrips* Uzel.

dd. Mouth cone as long as width, labrum sharply pointed.

e. Cheeks with spine-bearing warts. *Malacothrips*.

ee. Cheeks without spine-bearing warts.

f. Intermediate antennal segments not elongated. Fore femora not greatly enlarged.

g. Cheeks parallel, fore tarsi armed with spines. *Neothrips* Hood.

gg. Cheeks arched, fore tarsi unarmed. *Gnophothrips* Hood & Williams.

ff. Intermediate antennal segments elongate, fore femora greatly enlarged. *Megalomerothrips*, gen. nov.

cc. Wings fully developed.

d. Wings constricted in the middle.

e. Mouth cone broadly rounded at the end.

f. Cephalic bristles normal.

g. Wings only slightly narrowed in the middle; head length more than 1.5 times the breadth; fore tarsi unarmed. *Cryptothrips* Uzel.

gg. Wings distinctly narrowed in the middle; head length less than 1.5 times the breadth; fore tarsi with a tooth. *Haplothrips* (in part).

ff. One pair of cephalic bristles (not including the post-ocular) much elongated.

g. Post-ocellar bristles elongated; anterior margin of prothorax semicircular, emarginate and greatly thickened. *Dichaetothrips* Hood '14.

gg. Pair of bristles laterad of median ocellus elongated; anterior margin of prothorax normal. .....*Diceratothrips.*

ee. Mouth cone acute at the tip; wings considerably narrowed in the middle, like a sole.

f. Head nearly twice as long as wide; mouth cone reaching nearly across prosternum. .....*Leptothrips*. Hood.

ff. Head only a little longer than broad.

g. Mouth cone reaching only to middle of prosternum. *Zygothrips* Uzel.

gg. Mouth cone reaching across prosternum. .....*Phyllothrips.*

dd. Wings of equal width thruout.

e. Cheeks with a few very small warts, each of which bears a small spine.

f. Cheeks nearly straight. *Gynaikothrips.*

ff. Cheeks arched.

g. Post-ocular bristles long and conscpicuous; fore femors of ♂ with two teeth near apex. *Hoplandrothrips.*

gg. Post-ocular spines lacking. *Phloeothrips* Haliday.

ee. Cheeks without such warts.

f. Fore femora not enlarged.
g. Mouth cone acute.
h. Tube short; eyes prolonged on ventral side of head; a pair of long bristles on vertex at inner angles of eyes; intermediate antennal segments obliquely truncate at both base and apex.
*Omnatothrips* Hood '15.
hh. Tube, eyes and cephalic bristles not as above; antennal segments normal. .....*Liothrips* Uzel.
gg. Mouth cone blunt; individuals very large.
*Polyphemothrips* Hood and Williams.
ff. Fore femora greatly enlarged.
*Horistothrips* Morgan '13.

55. *Frankliella tritici* (Fitch). THE GRAIN THRIPS.

A single specimen of the typical species as distinct from the common varieties was swept from Eupatorium ageratoides in November 1918. The antennal segments 2 are typically symmetrical and the measurements agree closely with those given for the species. The spcimen is, however, almost colorless except for the eyes, and the bristles in front of the ocelli are very small. This is the first specimen of the typical species the writer has seen from Florida.

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## MODERN BEEKEEPING*

By FRANK STIRLING

One of the most fascinating pursuits and one that has shown a remarkable degree of expansion during the past few years is beekeeping. As in the case of other lines of endeavor, the tendency is more towards specialization. Authorities, such as Henry Alley, G. M. Doolittle and Frank C. Pellett, have found that, in order to develop beekeeping up to its present state of perfection, careful selection of the Queen Bee was necessary. The queen bee is the foundation of the community, or colony, because she is eventually the mother of all the bees in the hive. It is therefore necessary that she be vigorous, a rigorous egg layer, and like race horses, well bred.

There are many species of bees. During spring and summer

*Read before the Florida Entomological Society on Dec. 30, 1918.

one can see many different kinds among blossoms and flowers, but most of these are of very little economic importance; their only value lies in carrying pollen from flower to flower, and for this reason they are sometimes called the "Marriage Priests" of the flowers. Higher up in the scale one finds the bumble bees, which not only are useful in pollenizing, but store up very small quantities of honey.

While the number of species of these less important bees is considerable, only those commonly known as honey bees (of the genus *Apis)* are the ones of real importance as honey producers.

Of this genus, the great bee of southern Asia *(Apis dorsata)* has been the subject of considerable interest. This giant bee builds a very large single comb out in the open, generally suspended from the branch of a forest tree. On account of its fierceness, efforts to domesticate it have not met with success.

In Mr. Frank C. Pellett's book, "Practical Queen Rearing", mention is made of a number of other species of bees, of which the most important is the *Apis florea,* a very gentle little bee, much smaller than the common honey bee, and which builds a delicate little comb around a twig.

But of all species, the common honey bee *(Aphis mellifica)* is the only one that has been found of real value as a honey producer. Of this species a number of varieties occur, namely, the Italians, Blacks, Carniolans, etc.

While the Italians are generally accepted as the most valuable bees and are by far the most popular in the United States, some very good results have been obtained by the black bee here in Florida. The Italian has been tried out under all kinds of conditions and has proved the most satisfactory, as it is more gentle than the blacks and is more resistant to certain diseases.

Honey bees are not native to America. The wild bees often seen in Florida are the descendants of those imported. According to the *American Bee Journal,* the first honey bees were imported into Florida by the Spaniards previous to 1763, for they were first noticed in West Florida during that year, and it is quite probable they were brought to this State first, as they were not noticed in any other state until 1780, at which time they were observed in Kentucky; in New York in 1793; and west of the Mississippi river in 1797. The bees introduced by the Spaniards were evidently what is commonly known as the black, or German

(Continued on page 106)

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Those who would like to see the citrus tree fumigation demonstration being conducted in Florida by the Roessler & Hasslacher Chemical Company should address Mr. Walter S. Lenk, San Juan Hotel, Orlando, Fla.

Reports from the Better Fruit Campaign, being conducted jointly by the University Extension Division, the State Plant Board and the U. S. D. A., indicate much interest and good attendance on the part of the growers.

## PERSONALS

Mr. E. E. Wehr, a specialist on insect pests of live stock in the Bureau of Entomology, U. S. D. A., who has been in the State for several weeks on extension work, has left for Maryland.

Mr. A. C. Mason, formerly assistant in the Experiment Station and later in the Plant Board, has just been released from the army and has accepted a position with the Bureau of Entomology. He is to be located at Miami where he will take up the study of the insects of subtropical fruits other than citrus.

## OBITUARY OF MEMBERS

Mr. John A. Clinger died at Leesburg, Fla., Oct. 22, 1918.

Mr. B. O. Gaston died at Kissimmee, Jan. 17, 1919.

It is with the profoundest regret that we chronicle the death of these two gentlemen. Each filled his place on the force of the Plant Board and in the Society in a manner which showed an active interest in the agricultural welfare of the State. Both were men of high purpose and sterling character.

## REPORTS OF MEETINGS

October 28. Professor P. W. Fattig of the Teachers College and Mr. C. M. Berry of Sanford were unanimously elected to membership in the Society.

Under "Timely Notes" the presence of the Saddle-back Caterpillar on trumpet vine at the Experiment Station was reported by Professor J. R. Watson.

The principal paper of the evening, "Birds and Animals Injurious to Farm Products", was read by Mr. T. Van Hyning. Mr. Van Hyning reviewed the records of a number of birds, and it is his belief that but few are wholly injurious, most of them really being useful in reducing insects. Of mammals, the pocket gopher is the worst and a real parasite. Poisoned water is a remedy for rats in buildings.

The second paper of the evening, by E. W. Berger, was a continuation of the discussion on "Common Names of Insects" conducted at the previous meeting. The following principles were indicated as guides that may be followed by entomologists and others in the selection of common names:

1. Select a name already in use by the growers or others.
2. If there is no common name already in use, the scientific name may be translated wholly or in part. Thus we have Oak Ericoccus for *Ericoccus quercus* (oak), Flocculent Whitefly for *Aleurothrixus floccosa,* Bay Whitefly for *Paralemodes perseae* (bay), etc.
3. Some well defined and readily apparent characteristics may be used; as Woolly Whitefly, Cloudy-winged Whitefly, Long Scale, Chaff Scale, etc.
4. Sometimes the name of the person who described and gave it the scientific name is used as the common name; thus we have Putnam's Scale for *Aspidiotus ancylus* (Putnam). Or the name of the town or locality from which an insect is known may be used as the common name; thus we have Jan Jose Scale for *Aspidiotus perniciosus, Florida Red Scale* and *California* Red Scale for *Chrysomphalus aonidum* and *C. aurantii* respectively.

Scientific names of living things are recognized the world over. In other words, whenever an insect is described and given a scientific name, that is its name from Washington to Tokio, either way around the world. The fact that scientific names are written in Latin, either in Latin words or other words having the Latin endings, probably accounts for their ready acceptance. By using Latin as the language for scientific names, the competition between the many other languages is avoided. Linnaens, the noted botanist, first began the use of two latinized names for plants and animals nearly 200 years ago.

But common names are convenient for local usage, because they are in plain English, easier to spell and pronounce, and absolutely necessary to the economic entomologist who needs to discuss insect problems with many people.

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## MODERN BEEKEEPING

(Continued from page 103)

bee, and it has been generally supposed that our first bees came from Germany, but Pellett, who is accepted as authority, states that they very probably came from Spain. The native black bees of Great Britain, France, Germany and Spain are said to differ but little.

While the production of honey has for centuries been considered a profitable undertaking, it was not brought to its present state of perfection until such men as A. I. Root, L. L. Langstroth, and a few others, by means of the invention of modern methods, gave it the prominence it now attains. The 8 and 10 frame regulation hive which was invented by Langstroth has been almost universally adopted by progressive beekeepers, thereby making it easier to handle the bees.

Many states have beekeepers' associations, and at their annual meetings the most up to date methods for handling bees are discussed, and such men as E. F. Phillips, Kenneth Hawkins and others from the Department of Agriculture, as well as authorities like C. P. Dadant frequently attend. At the Iowa Experiment Station short courses in beekeeping are annually given, and at the Universities of Missouri and Texas departments of entomology have been offering courses in beekeeping for the regular University students; women as well as men select these courses, and upon completing their University course have pushed beekeeping in their respective communities.

Had it not been for this industry, the whole world would have suffered much more from the lack of sweets than it did during the past months, when war conditions made the amount of sugar available inadequate for the needs of mankind.

Increase in the cost of honey, due to the big export demand created by the war, makes it safe to predict that the coming year will see the greatest effort ever made in furthering beekeeping. During the last half of this year, honey to the value of perhaps $2,000,000 was exported—about 10 times the valuation for any year previous to the beginning of the war—indicating that honey has ceased to be a luxury in the minds of the Allied Peoples.

Also, the home demand for honey has increased. Figures are not available, however, as much of the honey of this country never reaches the larger centers of trade.

The amount of sweet produced by bees is really enormous. Honey is produced in this country, in ordinary years, in excess of two hundred and fifty million pounds. Those plants and flowers from which bees gather nectar are legion, and are scattered throughout the length and breadth of the land. The white-clover belt is the most important honey-producing region, because it furnishes not only the leading commercial honey but also more than one-half of the honey crop of the entire country. This belt extends from Maine to Virginia and westward to the great plains. From white clover alone is secured about one tenth of the Nation's crop of honey. This kind is almost colorless and has a delicate and delicious flavor.

According to the United States Department of Agriculture, alfalfa honey comes second in importance commercially, while sweet clover is third in line of importance. About 4 per cent of the Nation's honey comes from flowers of the cotton plant, 3½ per cent from the bass-wood, 3 per cent from the tulip poplar tree and buckwheat, and 2 per cent from the goldenrod.

California leads all other states in the production of honey. In fact, she produces about 20 per cent of the entire Nation's crop. This is because of the presence of great quantities of mountain sages, together with the fact that the beekeepers of that state have gone into the business in a business-like manner, using modern equipment.

Florida has, until recent years, been backward in her beekeeping industry. There have been, however, some few pioneer beekeepers in this State who have made more than a success of it. The late Mr. O. O. Poppleton was considered one of the foremost veteran beekeepers in the State, and on the East Coast, where he operated, he harvested immense crops of honey from the orange, palmetto and mangrove. Mr. W. S. Hart of Hawks Park, also a Florida beekeeper of prominence, has for years operated an apiary with profitable results in the hammocks along the East Coast. Dr. Edwin G. Baldwin, Professor of Latin at the Stetson University, has for many years made a business of beekeeping, and while it is more a hobby with him, yet it has turned out to be a very profitable one. In fact, he has made himself very prominent as a queen breeder, and his queens, in large numbers, have been sent throughout the North. Mr. H. L. Christopher is now

operating two large apiaries in the groves of the Atwood Grapefruit Ranch at Manatee, where the bees were intended primarily for the fertilization of the orange and grapefruit bloom. Mr. A. I. Root, the celebrated founder of the largest bee supply establishment in the world, and one of the foremost authorities on beekeeping, has for years operated apiaries in different sections of the State. Mr. Root spends his winters in Manatee County, and although he is 79 years old, he can still be seen plugging away at his winter home near Bradentown.

Even on the western side of Lake Okeechobee, Mr. C. C. Cook produces some of the most wonderful crops of honey ever heard of (mostly from gallberry).

While the main harvests of honey were formerly produced in the western portion of Florida, in the bottom lands of the Apalachicola and Choclahatchee Rivers, and in the southern portion of Walton County, the opportunities for this industry have in recent years been found present in practically all sections of the State.

The mild winters in Florida tend to make beekeeping more profitable than in the northern and western states. The low cost of operation is largely due to the fact that the bees have a chance to gather a little honey during almost every month. Then there is the large number of honey-producing plants; most desirable of which are the orange, palmetto, tupelo, titi, mangrove, partridge pea, goldenrod, gallberry, Spanish clover, and cotton. (Cotton produces about 32 per cent of all the honey made in the Southern States.)

It is not even necessary to have a farm on which to keep bees; they seem to do just about as well in cities and towns (where the number of colonies is limited) as they do in the country. I happen to know of one gentleman in Jacksonville who has four or five hives on top of a five-story office building, and I have heard of similar instances in Tampa.

Right here within the city limits of Gainesville, which section is not by any means considered well adapted for bee culture, there are to my knowledge 9 men who keep bees; these 9 men have a total of 48 colonies and there are undoubtedly others. As a rule, these gentlemen have had very good harvests of honey during the past year. One of them, who has but 2 colonies, made 172 pounds of surplus honey and comb. My own bees (I have six hives in my back yard) made an average of 70 pounds surplus per colony

this past season; and one of them, a ten-frame hive, made a little over 100 pounds.

Bees, if permitted to swarm naturally, will increase about double each year, although some will swarm more than that, so when a beginner starts out with one or two colonies, it is not many years before he has quite a large sized apiary. The cost of operation, with a few colonies, is very little, and the time required for their care is of no real importance.

It is advisable that those who anticipate going into the business of keeping bees should start out with not more than one or two colonies, learning all they can about it while their colonies are increasing. In order to secure the best information on the subject, it is advisable to subscribe to some one of the bee journals published in this country and to secure some text book, such as "A. B. C. and X. Y. Z. of Bee Culture". Bulletins on beekeeping can also be obtained free of charge from the Department of Agriculture, Washington, D. C. Failures have been made by some who started in on too large a scale, not having the needed experience required in handling large numbers of hives. The subject is one that should be thoroly studied, and one finds that the deeper he gets into it the more interesting it becomes. As stated before, the first question is that of selecting good stock; then it is necessary that the bees should be properly housed in regulation hives, using comb foundation for the purpose of keeping the honey comb straight. Regardless of the opinion expressed by some, the old fashioned hive, or "gum", should never be considered, as it has been conclusively proven unprofitable. The entrances to the hives should be so adjusted as to assist the bees in protecting themselves from their enemies, and care should be taken to so place the hives that they will have the proper amount of shade and ventilation.

The up-to-date beekeeper is not only an operator of his apiary, but a co-operator with his bees, and it seems that the bees soon become educated by the partnership as well as the beekeeper. By this co-operation and co-education of bees and beekeeper, together with an increased interest in the business and with sensible up to date handling, the result will be a development of honey production now scarcely dreamed of.

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STRATEGUS WANTED—Am making a special study of this genus, of the Scarabeidae, and should be very glad to receive Florida specimens, especially of the rarer specie. Will exchange or pay cash. Address W. Knaus, McPherson, Kansas.

WANTED—Diurnal Lepidoptera of Florida in exchange for desirable western species. Over 3000 butterflies on hand for exchanges. Dr. John A. Comstock, Southwest Museum, Los Angeles, Calif.

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WANTED—To buy or exchange for northern species, southern Chrysophidae (Lace-winged-flies). All stages desired, especially material for biological studies. Will determine specimens. Dr. Roger C. Smith, U. S. Ent. Lab., Charlottesville, Va.

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